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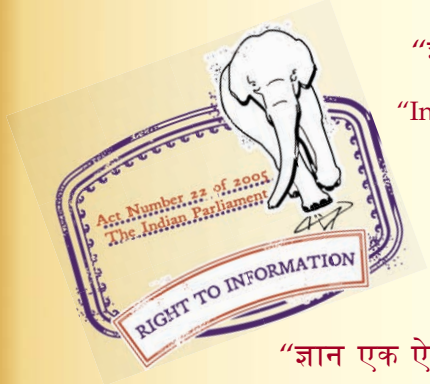
IS 10709 (1983): Brass wires for fourdrinier cloth [MTD 8: Copper and Copper Alloys]



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"Knowledge is such a treasure which cannot be stolen"

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IS : 10709 - 1983

Indian Standard

SPECIFICATION FOR BRASS WIRES FOR FOURDRINIER CLOTH

UDC 669·35'5-426 : 676·056·23

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2 *January* 1984

AMENDMENT NO. 1 JUNE 2004
TO
IS 10709 : 1983 SPECIFICATION FOR BRASS WIRES FOR FOURDRINIER CLOTH

(*Page* 4, *clause* **2.0**, *line* 2) — Substitute 'IS 3288 (Part 3) : 1986*' *for* 'IS : 3288 (Part I) - 1981*'.

(*Page* 4, *footnote marked* '*') — Substitute the following for the existing footnote:

'*Glossary of terms relating to copper and copper alloys : Part 3 Wrought forms.'

(*Page* 4, *clause* **3.1**, *line* 2) — Substitute 'IS 1387 : 1993†' *for* 'IS : 1387 - 1967†'.

(*Page* 4, *footnote marked* '†') — Substitute the following for the existing footnote:

'†General requirements for the supply of metallurgical materials (*second revision*).'

(*Page* 5, *clause* **7.1**, *line* 2) — Substitute 'IS 1608 : 1995‡' *for* 'IS : 2656 - 1964‡'.

(*Page* 5, *footnote marked* '‡') — Substitute the following for the existing footnote:

'‡ Mechanical testing of metals — Tensile testing (*second revision*).'

(MTD 8)

Reprography Unit, BIS, New Delhi, India

Indian Standard

SPECIFICATION FOR BRASS WIRES FOR FOURDRINIER CLOTH

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Indian Standard

SPECIFICATION FOR BRASS WIRES FOR FOURDRINIER CLOTH

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 October 1983, after the draft finalized by the Copper and Copper Alloys Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 Traditionally brass wires have been used as weft wires in weaving fourdrinier wire cloth for use in paper industry. With more and more developments and faster speeds of paper machines, specifications of brass wires have tended to be more and more critical in the performance of fourdrinier wire cloth. A need was thus felt to formulate an Indian Standard for wires for this end use.

0.3 In preparation of this standard the trade and manufacturing practices followed in the country in this field have been kept in view.

0.4 As the fourdrinier wire cloth is a customer made item, designed and manufactured to suit the specific requirements of a paper machine, the standard contains clauses **5.1** and **7.1** (Table 2), in which the purchaser is allowed to exercise an option and call for agreement between the purchaser and the suppler.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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1. SCOPE

1.1 This standard covers two grades of brass wires up to 0·45 mm maximum diameter, for manufacture of fourdrinier wire cloth.

*Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definition, as given in IS : 3288 (Part 1)-1981* shall apply.

2.1 Wire — Rolled, extruded or drawn product of solid section of uniform cross-section along its whole length and the distance between two parallel faces not exceeding 6 mm, may be supplied in straight length or in coils or in spools.

3. SUPPLY OF MATERIAL

3.1 General requirements relating to supply of material shall conform to IS : 1387-1967†.

4. FREEDOM FROM DEFECTS

4.1 The wire shall be clean, smooth, bright, uniform in diameter, free from scratches, twists, wrinkles and any other harmful defects which may degrade the quality of fourdrinier wire cloth.

5. CONDITION

5.1 The wires shall be finished by such cold working and annealing operation as would produce the required temper and surface finish as agreed to between the purchaser and the supplier.

6. CHEMICAL COMPOSITION

6.1 The material shall have chemical composition as given in Table 1.

6.2 The chemical composition shall be determined either by the method specified in IS : 3685-1966‡ or any other established instrumental/chemical method. In case of dispute the procedure specified in the latest edition of IS : 3685‡ for chemical analysis shall be the referee method.

TABLE 1 CHEMICAL COMPOSITION

Sl No.	Constituent	Grade I	Grade II
(1)	(2)	(3)	(4)
		Percent	Percent
i)	Copper	79-81	78·5-80·5
ii)	Tin, *Max*	—	0·50
iii)	Lead, *Max*	0·02	0·02
iv)	Total impurities (*Max*) (except tin)	0·20	0·20
v)	Zinc	Remainder	Remainder

*Glossary of terms for copper and copper alloys : Part 1 Cast form and wrought form (main types) (*second revision*).

†General requirements for the supply of metallurgical materials (*first revision*).

‡Methods for chemical analysis of brasses.

7. MECHANICAL PROPERTIES

7.1 Tensile Test — The material when tested in accordance with IS : 2656-1964* shall have the properties as given in Table 2.

TABLE 2 MECHANICAL PROPERTIES

GRADE	TENSILE STRENGTH MPa		ELONGATION PERCENT (ON GAUGE LENGTH OF 100 mm)
	Min	*Max*	*Min*
I	340	390	35
II	355	400	40

NOTE 1 — Actual variation on tensile strength shall be within 20 MPa and elongation variation within 6 percent for values chosen and mutually agreed to between the purchaser and the supplier.

NOTE 2 — 1 MPa = 0·102 kgf/mm².

8. TOLERANCES ON DIAMETER

8.1 For the purpose of this standard the tolerance and ovality on diameter shall be as given below:

Tolerance	+ 0·002 mm — 0·0 mm
Maximum ovality	0·001 mm

9. SAMPLING AND CRITERIA FOR CONFORMITY

9.0 Unless otherwise agreed to between the purchaser and the supplier, the following sampling procedure and criteria for conformity shall hold good.

9.1 Lot — In any consignment, all the spools of wire of the same grade (chemical composition), size, temper and manufactured at the same time under similar conditions of production shall be grouped together to constitute a lot. However, a lot shall not exceed 1 000 kg in mass.

9.2 Each spool of wire shall be examined from each lot for freedom from defects and for tolerances and ovality on diameter. Any spool found defective shall be rejected.

*Method for tensile testing of copper and copper alloy wires.

9.3 One test for chemical composition shall be conducted for each 200 kg or part thereof of wire in the lot. For this purpose the necessary number of spools shall be selected at random in accordance with IS : 1817-1961*. From each spool selected, one test shall be conducted for chemical analysis.

9.3.1 If the results of chemical analysis as obtained for each of the constituents satisfy the corresponding requirements, the lot shall be considered as conforming to the chemical requirements of this standard.

9.4 The number of samples for tensile test shall be at the rate of one per every 50 kg or part thereof in a lot.

9.4.1 The lot shall be considered as conforming to the requirements of physical properties if all the test pieces subjected to this test satisfy the requirements.

10. RETEST

10.1 If the test results of chemical analysis fail to satisfy the requirements for any of the constituents, two more tests for that constituent shall be done on the same sample in order to confirm that the analysis has been done properly. If both the test results satisfy the relevant requirements, the lot shall be considered as conforming to the standard.

10.2 Should any one of the test pieces first selected fail to pass the tensile tests, two further samples from the same lot shall be selected for testing, one of which shall be from the spool from which the original test sample was taken unless that spool has been withdrawn by the supplier.

10.2.1 Should the test pieces from both these additional samples pass, the lot represented by the test samples shall be decided to comply with this standard. Should the test pieces from either of these additional samples fail, the lot represented by the test samples shall be rejected.

11. PACKING

11.1 The material shall be supplied on spools wrapped in poly-coated kraft paper in packages weighing not more than 200 kg each.

12. MARKING

12.1 Each spool of the material shall bear a label or tag marked with grade, size, mass, lot number of material, name of the manufacturer and any other information required by the purchaser.

*Method of sampling non-ferrous metals for chemical analysis.

12.1.1 The material may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	Unit	Symbol	Definition
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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